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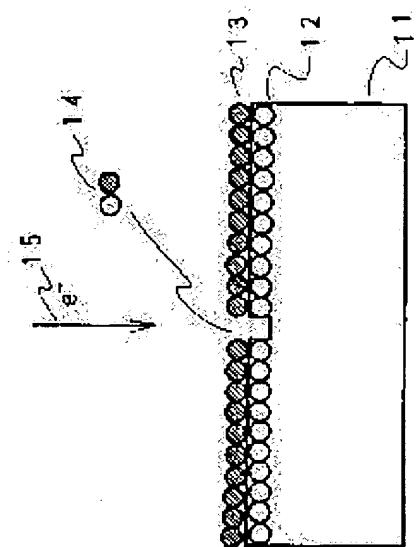
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(54) ETCHING METHOD USING ELECTRON BEAM

(57)Abstract:

PURPOSE: To realize simplification of a process and improvement of its precision, by etching a substrate, using an electron beam radiated on the surface of an substrate heated in an atmospheric gas in which a substrate material and a volatile compound-forming material are included.

CONSTITUTION: When an etched substrate 11 heated to the temperature, at which etching prevails over deposition, is located in an atmosphere of gas molecules 13 in which at least the substrate material 11 and a volatile compound-forming material are included as constitution elements, the gas molecules 13 are absorbed on the surface of the etched substrate 11. And, when an electron beam 15 is radiated on the substrate 11, an atmospheric absorbed molecule 13 at the irradiated part is combined with a lower substrate material molecule 12 by energy of the electron beam 15, to become a volatile molecule 14, so that the electron beam-irradiated part of the substrate is etched. Thus, because an etching width error is determined by only foreshattering of the electron beam, high precision is obtained.



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